

CHAPTER 1

Mechanics and Means of Production in Antiquity

Lucio Del Corso

1. Overview

Plato's *Theaetetus*, a philosophical dialogue written during the first half of the fourth century BCE, opens with a scene (142a–143c) which is arguably the oldest example of meta-literature: two characters, Euclides and Terpsion, remember the intense exchanges of ideas which Theaetetus, one of their friends now dying from a battle wound, used to have with Socrates. Before sadness for their friend's fate overtakes them, Euclides tells Terpsion that he has composed a text, comprising a full account of the dialogues of Theaetetus and Socrates, and explains the working method he followed: first he wrote some notes (*hypomnemata*) based on Socrates' reconstruction of his conversations with Theaetetus; later he further developed that text "in tranquility," asking Socrates more than once for explanations of specific topics, and then making the necessary corrections. In this way, Euclides says in conclusion, "I composed almost all the dialogue." The final destination of this process is a *biblion*, a "papyrus roll," which Euclides asks a slave to read aloud, while he and his friend lie on comfortable armchairs. The compositional journey here described is clearly articulated: the literary text is not the consequence of a single or unitary creative action, but rather the result of different phases, each distinguished by a significant interaction between orality and writing. And this interaction between spoken and written word extends long beyond the gestation of the literary works, into their final phases. Plato's dialogues are dotted with reading scenes, always used as a starting point for philosophical reflections, and with references to writing and books,¹ designated variously as *syngamma*, *biblos*, *biblion*.

It may seem contradictory to find such a sensibility in Plato: in other passages of his dialogues, the philosopher seems to propose a substantial devaluation of the role of writing as a tool for the preservation and transmission of knowledge; and in a dialogue almost completely devoted to the topic of poetic composition, the *Ion*, the final source of poetic inspiration is divine, and the rhapsode only an instrument for receiving it. But, in fact, Plato's references to the nature of literary creation enlighten rather than contradict each other, and portray the image of a literary civilization where the processes of composition, publication and reception were already articulated in a complex series of events.

Moving on many centuries, we come to the grey zone of the seventh century, where late antiquity and the Byzantine age overlap. At the end of his *Hodegos*, Anastasius of Sinai,² an erudite monk able to defend orthodoxy with a Greek prose worthy of the ancient philosophers, takes leave of the readers begging their pardon “for the many mistakes and repetitions” in his work. Indeed “these dogmas of Christ needed to be sketched out (*proschideusthai*) and corrected (*diorthousai*) and arranged in sections (*stichizesthai*) and then, finally, transcribed in a beautiful script (*kalligraphesthai*),” but because of a long illness the author could not follow all those steps: “therefore, we composed the treatise in this way, with the fascicle (*tetras*) in front of the sheet of notes (*schedos*). And if, as is possible, we said something which is not appropriate to the correct way of speaking or thinking, we ask you to forgive us: only God is truly firm” (24.120–140 = 320 Uthemann). In Anastasius’ apologies – the expression of a civilization substantially different from the age of the *poiesis* – the spoken word still plays a role, at least for the completion of the text; and Byzantine culture kept that oral dimension until its twilight (Cavallo 2007). Again striking is the lucid description of a compositional process articulated in very distinct phases (draft version, revised version, final version, editorially arranged and transcribed in calligraphic script), during which the author employed different forms of writing: thus, for Anastasius the *schedos* of the draft is an object different from the *tetras* of the final version, as the *hypomnemata* used by Euclides for the preliminary version of Socrates and Theaetetus’ dialogues are different from the *biblion* of the corrected and revised final text. But what exactly was this process of writing, correction and revision? Plato and Anastasius do not give us further details, imagining their public already knew this articulation of the work and the writing materials it was grounded on. But no modern attempt to reconstruct mechanics and means of production of literary texts in the Greek world can leave aside an inquiry in this direction, even if it will be difficult to give univocal answers.

Mechanics similar to those described by Plato or Anastasius can be deduced from many sources, scattered through much of Greek literary history, from the late classical to the beginning of the Byzantine age. But putting the diverse elements into a coherent picture is not an easy task. Greek writers were not much interested in describing the dynamics underlying the compositional process, nor about the tools involved in it. On this point, Latin writers have been much more generous: the epistles of Cicero and Pliny the Younger, Gellius’ *Attic Nights*, Quintilian’s *Institutio oratoria* (and the list could be much longer) are inexhaustible sources of information about the making of literary texts in ancient Rome (Pecere 2011). For the Greek world, we have nothing comparable. In Greek texts the materiality of the writing processes too often appears to be under a veil; even when an author speaks about his relationship with books and writing, usually he assumes an allusive tone, presuming the knowledge of things or facts we can no longer understand. Because of this behavior, many sources seem ambiguous to modern readers, and have been interpreted sometimes in opposite ways. One way to minimize such difficulties is to check texts against other forms of evidence. Many ancient works of art (from classic Attic vases to imperial sarcophagi) depict scenes with individuals reading or writing on different materials, in open spaces or at home: those objects therefore become precious evidence of Greek intellectual life. Again, significant information can be deduced by the examination of the characteristics of papyri and other writing materials used by the Greeks. But even a combination of such different materials will give us only a partial frame, with few established elements. Iconographic sources could be idealized representations, and above all they are rarely detailed enough; and papyri, for environmental reasons, come only from areas far from the main cultural centers, and are attested only from the beginning of the fourth century BCE, after the end of one of the most productive periods of Greek literature.

Even bearing such limitations in mind, a rapid survey of the extant evidence will allow us to reach a clearer comprehension of literary phenomena. With this in mind, let us return to Plato and Anastasius. As we have seen, the two writers both mention a plurality of different writing items: *biblion*, *schedos*, *tetras*, used for revised texts, or more generic

hypomnemata. Our survey on mechanics and means of production will start from here: the individuation of writing materials and of their functions.

2. Writing Materials

When Plato wrote the *Theaetetus*, writing was already employed in the Greek world for many public and private purposes, requiring different implements and materials. Texts intended to be exhibited to a large public, to celebrate someone or commemorate some events, were inscribed on marble, stone, bronze or even other metals; such writings were common in the *agora* and along the main streets of Athens and other Greek cities. But literary and iconographic sources show also that, at least since the Classical period, other perishable writing materials were widespread among the upper classes, and were employed for literary texts as well as for many other necessities of daily life. The most common were papyrus and waxed tablets, though it was also possible to write on other objects such as pottery sherds (*ostraka*), leather, lead, or even bones.

2.1. Papyrus

Papyrus was the main writing material employed by the Greeks for a very large part of their history (Lewis 1974). But they did not invent it: papyrus comes from a plant (*Cyperus papyrus*) that flourished along the Nile, in Egypt. The idea to turn this plant into a writing

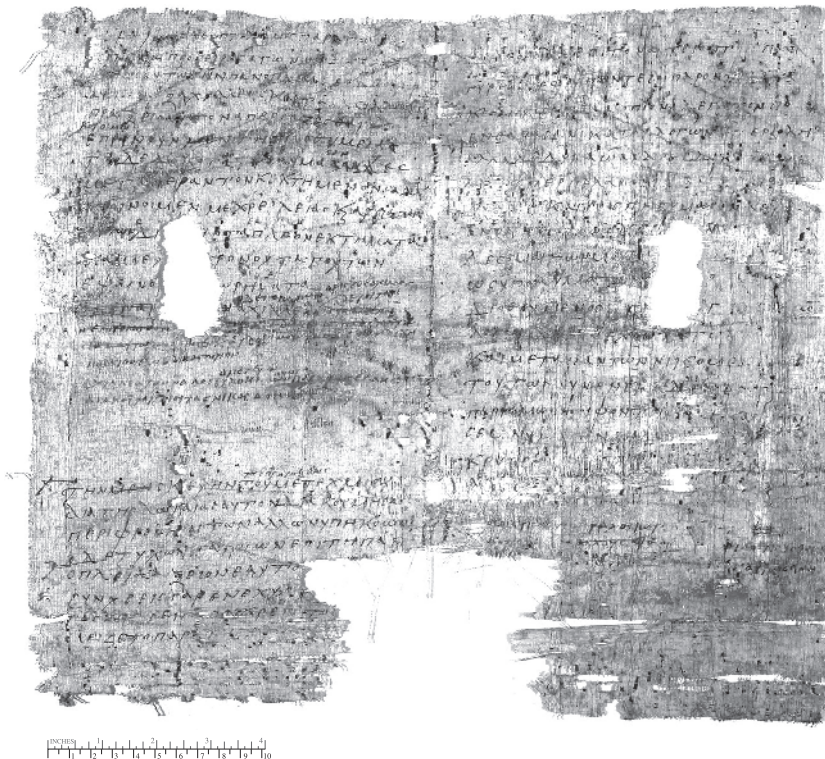


Figure 1.1 A fragment of a speech written on papyrus for a certain “Appio,” dated to the sixth–seventh century CE. Florence, The Biblioteca Medicea Laurenziana, ms PSI XIV 1399. On concession of the MiBACT. Any further reproduction by any means is prohibited.

material which could be assembled in rolls is an Egyptian discovery, whose importance for western civilization can be compared with the developing of geometry and mathematics, or of writing itself (Černý 1952).

The archaeological evidence shows us that by the early third millennium BCE Egyptians understood that a specific variety of the papyrus plant, very widespread along the Nile and in the swamps close to it, could be turned into an easy-to-employ and flexible writing material, and probably after a few decades they started to assemble it in scrolls ("papyrus rolls"), which could contain large amounts of written texts. Papyrus and papyrus rolls, therefore, seem to be as ancient as pharaonic civilization. From at least the second millennium, other populations used papyrus, probably as a consequence of close contacts – both economic and cultural – with Egypt: literary sources such as the "Journey of Wen-Amon" attest that Phoenicians employed papyrus rolls before the twelfth century BCE (Pritchard 1969, 25–29: 28);³ and even if the most ancient Hebrew and Aramaic papyri are no later than the eighth century BCE, literary and paleographic evidence suggests a much earlier diffusion of such materials.⁴ During the first millennium BCE, papyrus became widespread among different civilizations in the Mediterranean area and in the Near East, and finally was employed also by the Greeks to preserve their cultural memories, as a natural consequence of increasing contacts with those populations. We cannot say exactly when the first papyrus rolls arrived in Greece. Most scholars find the sixth century BCE a reasonable date; to the second half of that century belong the most ancient reading scenes depicted in Greek art, on black-figured Attic vases (Immerwahr 1964 and 1973; Del Corso 2003), and literary sources from the beginning of the fifth century contain explicit references to papyrus rolls. Around 570 BCE the opening of the emporium of Naukratis, run and organized by Greek merchants on the Nile Delta, assured to all Greek cities easier access to Egyptian goods and commodities (Boardman 1999, 118–53; Austin 1970). But it is possible that papyrus as a writing material arrived in Greece even earlier. Greeks learned the use of the alphabet from Phoenicians as early as the eighth century BCE,⁵ and at that time, as we have seen, Phoenicians normally used papyrus to write. Moreover, contacts between Egypt and Greece are attested even during the dark age following the fall of the Mycenaean kingdoms. The introduction of papyrus to Greece, therefore, could be as ancient as the introduction of alphabetic writing.

In any case, the developing of a bookish mentality was a slow and gradual process, limited only to the literate, in the upper classes of the population. At some point during the Archaic age, important documents and literary texts, even if orally composed and transmitted, began to take definite shape in papyrus rolls or sheets, which sometimes could be stored in public places, such as temples,⁶ since proper libraries are not yet attested for that period. This happened not only to short lyric poems or to collections of sympotic texts, such as the elegies forming the Theognidean *corpus*, but also to lengthier poems, such as those ascribed to Homer and Hesiod. A famous literary tradition mentions that the tyrant Pisistratus during the sixth century ordered the whole *Iliad* and *Odyssey* transcribed on papyrus rolls, in order to preserve their integrity.⁷ Even if this episode is a tale invented by Hellenistic authors, as many scholars argue (Ferreri 2002), Homeric poetry, along with other crucial works of Greek literature, reached the full status of written text many decades before the Persian wars, and this would have been almost impossible without papyrus rolls.

By the fifth century, writers refer to papyrus as the standard writing material, using the term *biblos/byblos*, together with related forms *biblion/byblion*, or the adjective *biblinos/byblinos* (Del Corso 2003, 8–19). These words denote not just papyrus bookrolls, as is common in later centuries, but more generally any kind of text written on papyrus. Herodotus, e.g., uses *biblos* for any papyrus sheet, such as the letters written by Harpagus to Cyrus, or by Amasis to Polycrates of Samos, or other official messages;⁸ even a collection of family documents can be a *biblos*, as we see in Lysias,⁹ or a *biblion*, as in Demosthenes.¹⁰ Sometimes comedians refer to reading¹¹ and like to make jokes using bookrolls;¹² but it is only in Plato's dialogues that the word is exclusively used for bookrolls: we find more than 15 examples of the term with this

meaning, referring to philosophical treatises (*Phaed.* 97c), rhetorical works (*Symp.* 177b–c; *Phaedr.* 230d–237a), and poems (*Rep.* 364e–365a).

At the same time, we find more and more references to the use of papyrus for bureaucratic purposes, as in the well-known inscription recording the expenses for the refurbishing of the Erechtheum (IG I³ 476; 408–407 BCE), where the last entries concern the purchase of four writing tablets (*pinakes*) and one blank papyrus roll, probably for accounting. Here the papyrus roll is called *chartes*, a word used also in much later documents for “standard” commercial papyrus rolls.¹³

Our evidence depicts the *biblos* as the repository of written texts in their final shape. In fifth-century sources we find many references to people *reading* their bookrolls, but none to an individual *writing* on them. This status will be characteristic of papyrus rolls for many centuries. In the Classical age, even if the *biblos*, as a material object, was not yet fully defined, its general layout was already set (Del Corso 2003): the text was arranged in many columns, written along the broader side, from left to right; there was no word division and only a few signs were employed to distinguish parts or sections of the text, such as the *paragraphos* – just a short horizontal line – or the *coronis* (an elaborated *paragraphos*, comprising several lines, sometimes joined with other ornamental signs, used to mark the end of a significant section or of the whole text).¹⁴ The writers used a sharp pen (*kalamos*), and a sponge to clear incorrect words or phrases. We do not have a clear idea of the scripts employed in such rolls, but they were likely similar to those we see in some epigraphic texts, such as the thin and square majuscules used in Attic inscriptions recording public expenses or the activities of magistrates. But significant differences probably arose quite soon. The geometric arrangement of writing so characteristic of Attic script – the so called *stoichedon* style – does not seem to fit to bookrolls; and, moreover, during the fifth century a sort of stylistic differentiation among papyrus scripts already had to exist, since Plato (*Lg.* 7.810 a–c) mentions slow, calligraphic scripts as opposed to quickly written scripts.¹⁵

Our evidence seems to point to a medium very flexible in format and dimension. Confirming this are the two most ancient surviving papyrus bookrolls, even though they date only from around the midpoint of the fourth century BCE:¹⁶ the “Derveni papyrus,” found in the necropolis of Derveni (close to the modern Thessaloniki) and containing a commentary to a lost orphic poem,¹⁷ and the “Timotheus papyrus,”¹⁸ found in Abu sir al Malaq (Egypt) and preserving Timotheus’ “*nomos*” on the battle of Salamis. The two papyri are almost contemporary – so it is difficult to establish their relative dates – but show striking material differences: not only are the scripts different – more elegant and regular for the Derveni papyrus, quicker and untidier for the Timotheus – but the dimensions of writing columns and of the rolls themselves clearly vary.¹⁹ This may be only partly connected to the characteristics of the transcribed texts: the two rolls reflect a different sensibility about the ultimate role of the book. The columns of the Timotheus papyrus are too broad to be easily read, especially since the words were not divided; the few *paragraphoi* give only a vague idea of the main sections of the poem. Moreover, the roll was assembled specifically to contain only that composition. On the contrary, in the Derveni papyrus the text is arranged to be more easily understood: word-end and column-end always correspond – a useful aid to readers when there is no word division; *paragraphoi* are systematically added to mark sentences and to distinguish verses from their commentary. The Timotheus and the Derveni papyrus, thus, seem to reflect different attitudes toward the book and different bookish mentalities.

These differences arise from a system where the text was conceived first for a specific *performance* or occasion, and not for a public of readers. The duration of the *performance* influenced the length of the composition, and once the occasion was over, the author did not follow any fixed editorial rule to publish his work. He was interested only in preserving the text in its integrity, using the papyrus roll especially for that.

Bookroll formats became more standardized from the Hellenistic age onward, as a consequence of a broader evolution in the attitude toward writing in daily life,²⁰ and therefore of the birth of new relationships among authors, books, and public, which is now composed not only of “listeners,” but more generally of readers. During the Hellenistic age “literary”

rolls and “documentary” rolls became clearly distinguished, as reflected lexically: a *biblos* is now the equivalent of Latin *volumen*, or bookroll, and the papyrus rolls or sheets employed for documentary or other daily purposes are generally designated with different words, such as *tomoi*. The new status of the bookroll is clearly reflected in literary sources, especially by poetry, where we find an array of vivid representations of the *biblos*, praised as vehicle of transmission and even source of inspiration for poetry, and sometimes personified and talking to its readers (Bing 1988, 16–48). We can see these changes clearly in Greek papyri found in Egypt. While third-century BCE bookrolls still show a wide variety of formats (Blanchard 1993), from the second century BCE they become more regular: the usual lengths range from 3.50 to 8 meters for poetry rolls, and from 2–2.50 to 15 meters for prose rolls, while the average heights are from 17 to 21 centimeters, even though some rolls are much taller, or even smaller, such as the elegant anthology of epigrammatic poetry Pack² 1598, no more than 5 centimeters tall.²¹ A single roll, therefore, kept a single literary work, such as one tragedy, one rhetorical speech, or one book of Homer; the same roll could also collect many short texts of the same author, such as epigrams or lyric compositions, and soon thematic anthologies arose, grouping texts of different authors but similar content. Texts too long to be transcribed in a single bookroll had to be split into different rolls, even if regarded by their author as a single, continuous text.

Such formats reflect a process of emancipating literature from given occasions. Even as performance continues to play a major role in the production of literary texts during all periods of Greek history, starting with the Hellenistic age, writers and poets perceive bookrolls not just as a tool for storing texts, but as the natural vehicle for the diffusion of literary compositions, a vehicle that allowed texts to be read by many more people, and in contexts very different from those they were composed for. At the same time, authors could no longer personally manage the integrity of their works, watching every step of their diffusion, as in the previous age. This factor had a deep impact on the dynamics of publication of literary texts.

During the Imperial age the process of standardizing bookrolls becomes clearer. In a famous passage, the elder Pliny (*Nat. Hist.* 13.74–82) provides us the only extant detailed report on the manufacture of papyrus as writing material in antiquity, describing the Egyptian *ateliers* where papyrus was made as well-organized workshops, following fixed procedures. Pliny lists nine typologies of papyrus sheets, differing in color, smoothness, resistance and dimensions (Lewis 1974, 34–69). Such “commercial” rolls were only a starting point for ancient scribes, who would cut and paste the writing material in response to their needs; so, it is difficult to identify, among extant papyri, rolls which can be linked to Pliny’s words. Moreover, we do not know how ancient this working organization was, since something similar already existed under the Ptolemies, and probably even before. Yet Pliny’s passage describes a more structured system, and a larger production.

Additionally, in Roman times literary genres were often linked to specific book formats. Technical literature and narratives are often attested on rather tall bookrolls which, even if written by professional hands, exhibit a specific layout, consisting of columns very close to each other, with more lines – and smaller letters – than the average; in these rolls it is easier to find reader-oriented features such as blank spaces, indentation, or lexical signs, whose function was to help readers in understanding and “browsing” the text.²² On the contrary, masterpieces such as the Homeric poems – the foundation of the whole educational system – were linked to another model of bookroll, more regular in dimensions, layout and scripts (Cavallo and Del Corso 2012).²³ This is obviously a simplistic representation of extremely complex editorial mechanisms. Greek bookrolls, as the evidence from Egypt clearly shows, displayed a wide array of scripts and layouts, keyed to a plurality of practices, and developed to answer to different purposes. The same text could be transcribed by an individual who was learned, though untrained in calligraphic scripts, on a roll made of re-used papyrus sheets, or by an uneducated, professional scribe, on papyrus of the finest quality, thus giving as a result two completely

different bookrolls. But in general, the perception of form matching content was so clear in readers' expectations that it also influenced writers' attitudes (Canfora 1995, 11–18).

As a consequence, the social status of bookrolls evolved further: bookrolls are seen as something more than a mere medium for literary texts, and become a real status symbol for Roman élites, sometimes appreciated only for their beauty, precious as jewels,²⁴ eagerly desired by collectors, either learned lovers of letters – such as Galen, who had in his private library in Rome rare bookrolls written many centuries before²⁵ – or bored rich people searching for occupations – such as the ignorant book collector satirized by Lucian²⁶ – or again *parvenus* looking for social legitimation, such as Petronius' Trimalchio, who boasts to have three libraries in his *domus*, but cannot say what is inside them.²⁷ And the élite proudly show off this status symbol on their tombs and sarcophagi: both cultivated and uneducated – especially in the uncertain years from the Severans on – aspire to be represented in an afterlife where they can wear the philosopher's mantle and grasp a bookroll in their hands (Marrou 1938).

Papyrus bookrolls are still produced during the first centuries of the Byzantine age. The festal letters composed by the patriarchs of Alexandria to announce Easter were written in beautiful calligraphic scripts on papyrus rolls at least until the eighth century CE; and for the same period rolls with pagan literature are also attested. But from the third century CE the codex, the direct ancestor of our book, gradually replaced the roll as the main medium for literature.

2.2. The Codex

The codex was made of papyrus or parchment sheets folded and bound together, usually under a leather or wood cover. Its origins are even more obscure than the papyrus roll's. As several literary sources attest, by the end of the first century CE in the Roman world it was usual to write on wooden tablets or parchment sheets bound together with strings or similar.²⁸ The Romans used these first *codices*, in rough and basic forms, from a relatively early period. On the contrary, this technology was unusual to the Greeks, who probably began to use *codices* quite late in their history. The oldest ones found in Egypt are not earlier than the second century CE; moreover, there are no apposite Greek words for it: the codex was referred to using words already employed for other writing technologies, such as *biblos*, *deltos*, or even *membranai*, “leathers,” if on parchment; only during the Byzantine age do we find a word which indicates it with a reference to its shape: *teuchos*, which in classical Greek is a “box.”

Papyrus codex sheets were cut from blank rolls (Turner 1977), then folded and assembled together in fascicules, in such a way that opening the book there were always two facing pages with fibers in the same direction. The formats varied, but usually papyrus codices were tall and narrow, and had one column of writing on each page, with broad margins around; the largest manuscripts could have two columns. Parchment *codices* looked different from papyrus ones: they were generally square and larger, and even among the most ancient materials it is easier to find exemplars with more than one column per page. From the fourth century CE truly monumental parchment *codices* are attested, such as the so-called “Sinaiticus,” where Old and New Testaments are transcribed in wide pages, displaying four columns each.

Whatever the format and material, during late antiquity the codex replaced the roll, becoming the main instrument to preserve and transmit literature. This process, which can be considered one of the most important events in the history of Western culture (Cameron 2011, 455–6), was slow and gradual; it is difficult to trace its steps, and its causes are still debated. We may only say that the transition was completed between the fourth and the fifth century CE, and was the result of multiple factors. “Practical” reasons are always invoked: the codex was cheaper and contained larger amounts of text; moreover, it was easier to read a codex and to find a specific passage in it. In this the codex represented a

significant improvement, especially if we consider that during late antiquity there was a diffusion of new texts – including many theological works – and even new literary genres – such as the “encyclopedic” compendia – which expected the reader to identify and focus only on a selected part of the text each time. But other, ideological and socio-cultural factors played a role as well. Christians chose the codex for their Scriptures, and the spread of Christianity implied a wider diffusion of their texts, and of their preferred book form (Roberts and Skeat 1983). On the other hand, Christians were not alone. The codex was largely used by individuals of “middle class” – or of the so-called *media plebs* (Veyne 2000) – who needed specific technical texts (for agriculture, astrology, law, medicine...), but were also accustomed to read some literature for leisure. During late antiquity, as a result of deep transformations in the social structure of the Empire, more and more individuals from such strata became part of the Imperial bureaucracy, changing the composition of local élites. For these new élites the codex was even more natural than the bookroll. The roll thus came to be seen as the technology of traditional culture, patrician and pagan, while the codex appeared as the most suitable medium for the new cultural necessities (Cavallo 2009b).

Rolls and later *codices* were for many centuries the technologies employed by the Greeks to preserve written works in their final (or almost final) shape, such as those kept in private and public libraries, or filed in archives. But daily life also required the production of a number of ephemeral texts, not intended for preservation. For them, sheets or strips of papyrus (or even parchment) could be used, but usually other writing materials were preferred, such as wooden writing tablets, pottery sherds (*ostraka*), lead, gold or even bones.

2.3. *Wax Tablets*

Wax tablets (*pinakes*, or more generically *deltoi*) consisted of two (dyptich), or more (polyptich) wooden sheets, whose inner face was carved and filled with a sort of wax. Writing on them was possible with a stylus, pointed at one end while the other was generally broader, like a thin spatula, used to delete portions of text, since the wax could be easily removed. Like other writing materials, tablets are attested for a very long period of time, beginning with use by Babylonians and Hittites during the Bronze Age (Symington 1991; Waal 2011). The wooden dyptich found during the excavations of the shipwreck at Ulu Burun, Turkey (Payton 1991) suggests that the tablet was familiar also in the Aegean world, since at least two members of the crew were Mycenaean (Bachhuber 2006). Those tablets are very similar to the ones used centuries later by Greeks and Romans in shape, dimensions and even the wood they are made of (Warnock and Pendleton 1991, 107). In Greece, writing tablets can be seen for the first time in a famous group of statues of the early sixth BCE, the so called *tamiai* (“treasurers”) of the Acropolis of Athens;²⁹ moreover, from the sixth/fifth centuries BCE we find references to wax tablets in literary sources and vase paintings, and the above-mentioned inscription of the Erechtheum (IG I³ 476) records the purchase of four *pinakes*. Such evidence is now confirmed by the spectacular finds from the tombs in Odos Olgas, Athens, where, as above mentioned, together with the fragments of a papyrus roll, four wax tablets were found, still bearing some lines of a lost poetic composition.³⁰

At least since the end of the Archaic period, the use of wax tablets is linked to provisional texts, and to texts that had to be corrected or updated through a period of time, following patterns that remain the same for many centuries (Small 1998). Therefore, tablets were largely employed in documentary practices, especially for lists (of men, places, or goods) or accounts (Arist., *Ath. Pol.* 48), and for the same reason were widely used in schools (Cribiore 1996, 65–9).³¹ But wax tablets were also used for more complex texts. During the Hellenistic and Roman ages this is well documented by many pieces of evidence, such as the so-called “Kellis

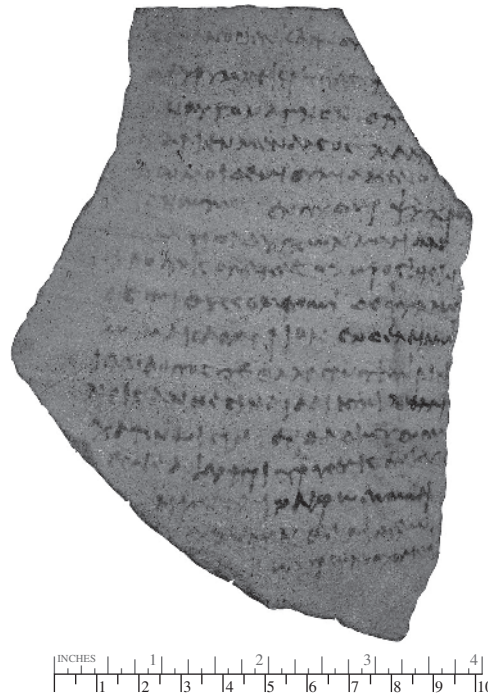


Figure 1.2 The so-called Sappho Ostrakon. A pottery sherd dated to the second century BCE, a source for Sappho fragment 2V. Florence, The Biblioteca Medicea Laurenziana, ms PSI XIII 1300. On concession of the MiBACT. Any further reproduction by any means is prohibited.

Isocrates,” a polyptich found in Kellis (ancient Trimithis), assigned to the third century CE, where someone (a school teacher?) transcribed the *Nicocles*, the *Ad Nicoclem*, and the *Ad Demonicum* (Worp and Rijksbaron 1997). Moreover, since passages could easily be corrected or rewritten on them, *pinakes* were suitable also for literary drafts. In a much disputed passage, Diogenes Laertius (3.37) affirms that when Plato died, his last work, the *Laws*, was still written *en kerois*, “on wax tablets,” since the philosopher did not have the time to edit it properly on papyrus, a task taken over, instead, by his pupil Philip of Opus; and other sources mention a wax tablet said to be Plato’s, where the opening words of the *Republic* were written several times, arranged in various order (e.g. Dion. Hal., *De comp. verb.* 25; see also Diog. Laer. 3.37, and Quint., *Inst. orat.* 8.6.64). We cannot establish the reliability of such references, even though, for the Imperial age, there are iconographic representations of people taking notes on tablets during the lecture of a philosopher³² or in similar contexts.

2.4. *Metal, Leather, Ostraka*

As we have said, since the Archaic age Greeks also wrote on materials not expressly intended for letters. Writing on metals was not uncommon (Jeffery 1990, 55–6). In the Classical period, public texts (such as laws or decrees) were sometimes incised on bronze tablets, and metals were employed also for ritual or magic writings, such as the thin inscribed Orphic gold leaves (Bernabé and Jiménez San Cristóbal 2008), or the lead curse-spells (*defixiones*) found in many cities, from southern Italy to the Black Sea.³³ Lead could also be used for longer texts such as private letters

(Jordan 2000b). Similarly, leather – before the diffusion of parchment – could be used, but it was perceived as foreign or “barbaric”; Ctesias, a fifth-century BCE historian, was struck that the annals of the Persian kings were written on leather,³⁴ and Herodotus (5.57–9) wonders why the word *diphtherai* (properly “leathers”) is sometimes used as synonymous with “bookroll.”

The practice of writing on discarded pottery sherds (*ostraka* in Greek), was instead much more common. During the fifth century BCE, *ostraka* were used in Athens especially for a well known judicial procedure, the *ostrakismos*, which required the citizens to write on *ostraka* the names of dangerous individuals who could potentially harm the *polis*.³⁵ They did this either by inscribing the sherds with a blunt instrument, or writing on them with ink and brush or *kalamos*. Inscribed *ostraka* are by far the majority,³⁶ but since ink writings survive only under certain circumstances, this practice was probably more widespread than what we see today, and probably not limited to such a specific occasion. Egypt has preserved a much larger number of Greek texts written on pottery, starting with the early Hellenistic age. Most of them are documentary – tax or payment receipts, letters, notes, accounts –, but literary texts are also well represented. Schoolboys could improve their writing skills practicing on *ostraka*, instead of tablets, and teachers sometimes wrote poetry or prose texts on pottery sherds which their students had to transcribe (Criore 1996, 63–4). Pottery sherds were a popular writing material because they were abundant and free; it was thus convenient to use them even for official bureaucratic tasks. But outside of school, their literary usages were very limited; the sources make no references to the use of *ostraka* for literary composition.

3. Writing Practices and Text Composition

This schematic survey points to a conclusion: Greeks had at their disposal a plurality of writing materials and technologies, but they did not use them randomly, or because of external factors (e.g., the scarcity of papyrus). Indeed, the materials had their own specificity and were used for selected purposes. Moreover, at least from the late fifth century BCE the making of complex texts required the joint usage of different materials: one for the draft, another for the definitive, official copy, and this was true both for documents and for literary texts, in prose or poetry. In this process, writers relied mainly on wax tablets or papyrus sheets for the draft, and on papyrus rolls (and then *codices*) for the final version.

Statements like those by Anastasius of Sinai (and more could be quoted) show us that this practice lasted for the entire span of Greek literature: but how ancient was it? We cannot say, nor is this surprising, if we consider the divergences among scholars on the date of the introduction of alphabetic writing to Greece. What we can reasonably suppose is that different techniques of composition coexisted for a long period. Rhapsodes able to improvise epic verses were active for the entire Archaic age³⁷ and are still attested in Plato’s epoch, as with Ion, whose skills are debated in the dialogue named for him (Boyd 1994). The divine inspiration that governed their poetry did not require the use of writing, which would have impeded the kind of performances they were used to. Setting apart the complex cases of the Homeric poems and Hesiod, a different sensibility already arose during the seventh century BCE, when new poetical genres arose which probably required a different compositional attitude. It is difficult to imagine, e.g., that writing did not play a role in developing the complex metrical structures of Alcman’s *Partheneion*, or of the compositions meant to boast the virtues of Archilochus’ friends. And in the sixth century BCE, the diffusion of literary genres like historiography, whose products were structured as long prose texts – Hecataeus’ *Genealogiai* are said to have been in four books – implied the further developing of mechanisms of production based on something more articulated than mere dictation. The perception that composing literary texts was a troublesome matter was common in fifth century BCE Athens, if a comedian as Aristophanes can

make jokes about it, as in the *Acharnians* (397 sqq.), where he satirizes Euripides painfully composing a tragedy... reclined on his bed.

To understand the dynamics of creation of a complex literary text we might compare the process for the writing of public documents, which, at least for Athens, can be reconstructed from Aristotle's *Constitution of Athens* and other textual and epigraphic evidence. In Athens, state documents were mostly the results of the following steps: 1. collection of raw materials and basic information; 2. writing of a comprehensive text, with the partial data included – this text was presented to the *boule* or to another appropriate assembly to be discussed and emended; 3. production of the official document, with the addition of a prescript and of the necessary bureaucratic elements (dating formulae, list of the officers in charge, and so on); this text was deposited in an archive and, in some cases, was also inscribed and publicized to all the citizens. For the first step, wax tablets are expressly mentioned as the most suitable material,³⁸ and the text submitted to the assembly could be on tablets as well; but we may infer that the official copy was often written on papyrus, before being eventually put onto stone.³⁹ Long literary texts must have followed a similar pattern. Maybe, since the texts were considerably longer, papyrus sheets were employed for the drafts instead of tablets,⁴⁰ and the final versions were preserved only in bookrolls: but the overall process must have been quite similar.

Proper descriptions of writers' compositional practices can be found only at the end of the fifth century BCE. They can be read especially in texts from philosophical or rhetorical *milioux*, such as Plato's or Isocrates' schools. The passage of the *Theaetetus*, quoted at the beginning of this chapter, is one of the most detailed: here the genesis of philosophical treatises is described as a dynamic sequence of provisional texts, starting with original notes taken during real dialogues, and slowly tending toward a fixed state, reached by the author working on it again, with a teacher or friends. Such a process is attested, in its main outlines, until late antiquity and beyond, and appears to be common for other kind of texts: historical, medical, scientific, grammatical, rhetorical and so on.

References to preliminary notes can be found in authors varied in interests and date, such as Strabo,⁴¹ Plutarch,⁴² Lucian,⁴³ Aelius Aristides;⁴⁴ and we can imagine that this way of composition was later chosen also by Christian intellectuals like Origen and Eusebius – if we consider the length and the accuracy of their impressive works of erudition.⁴⁵ Similarly, many authors stress the importance of the phase of correction of provisional texts. This task was sometimes carried over during private readings, as already attested by Isocrates⁴⁶ – an author who gives many hints about his attitude toward literary composition (Pinto 2003; Nicolai 2004) – and later by philosophers, such as Theophrastus,⁴⁷ historians, such as Polybius,⁴⁸ rhetors, such as Libanius,⁴⁹ or by a physician-philosopher, such as Galen, who extends similar strategies of composition even to Hippocrates' *Epidemiai*.⁵⁰

Concrete evidence for this method can be found in the large group of Epicurean papyri found, at the beginning of the eighteenth century, in the "Villa dei papiri" in Herculaneum, Italy. The main group of these papyri formed the working library of Philodemus, an Epicurean philosopher who moved from Greece to Italy, where a rich Roman aristocrat, Lucius Calpurnius Piso, probably the owner of the villa (Gigante 1995), sponsored him. Some of Philodemus' papyri – especially the rolls of the *Rhetoric* P. Herc. 1427, 1506, 1674 – are written in an uneven script, with corrections, and show irregular columns and layout; at their end a colophon is added, labeling each as a *hypomnemmatikon*. If we consider the physical appearance of the rolls, it is likely that the colophon was intended to mark them as provisional texts, made under the supervision of their author, an intermediate step before the definitive, correct edition of the work, which then would have been copied in a calligraphic script by professional hands, well exemplified among the remains of the villa's library.⁵¹

The rolls of Herculaneum illuminate another characteristic of literary composition: the costs of the production of texts and the relevance of patronage.⁵² Philodemus – a secondary character in the history of literature and philosophy – sponsored by Lucius Calpurnius Piso – a Roman

patrician but not one of the most powerful men of his times – was aided by a staff of professionals: calligraphers, secretaries, even restorers who cared for his books. Without that team, he could not have composed so many works. But the production of lengthy texts required that kind of organization, the costs of which could be sustained only by the wealthiest members of the élite. So the writer, if not part of the élite himself, needed a sponsor who could cover both his daily expenses and the costs of his research and of the production of his texts. In the history of Greek literature we find only a few organizations that could support writers: the philosophic schools are one example, but they could rely on centuries-old properties and often were originally founded by aristocrats (such as Plato himself). The Hellenistic kings played a key role in literary patronage. The best-known example is the court of the Ptolemies, who founded the Museum, where historians, scientists, poets, and philologists were hosted and had the possibility to have access to the most extensive library in the Greek world (Fraser 1972, 305–35).⁵³ We must imagine that the Ptolemies also guaranteed them the human resources (and the writing implements) they needed for literary work. But all the Hellenistic monarchs hosted writers, and also, following the Ptolemaic example, managed to create libraries, sometimes impressive, as in Pergamon, assembled with the help of a renowned critic and philologist, Crates of Mallus. In Roman times, the burden of patronage was shared by a plurality of individuals, sometimes occupying key positions in state administration. The examples are many: Scipio Aemilianus, the consul who destroyed Carthage in 146 BCE, was the protector of a circle of Latin and Greek literates, including the philosopher Panaetius and the historian Polybius; later, in the second century CE, the senator Lucius Mestrius Florus sponsored Plutarch, who was also helped by another aristocrat, Quintus Sosius Senecio, friend of Trajan; and still later the influential Julia Domna, wife of Septimius Severus, sponsored an important circle of Greek writers and intellectuals, including Galen and Philostratos. Even Christian intellectuals needed sponsors for their theological researches: Origen wrote his treatises thanks to the financial help of the rich Ambrose, who always supported his efforts; and Eusebius could rely on the help of the emperor Constantinus I himself. Among other forms of patronage, cities, especially in the East, provided honors and benefits – even basic ones, such as free meals, a salary or a house – to writers who praised the community, told its history and myths, or just read compositions that delighted the citizens. Inscriptions scattered everywhere in the Greek world attest this practice over a long period, from early in the Hellenistic age to late antiquity, referring to the occasional composition of texts belonging to many literary genres, including poetry, rhetoric, and history.⁵⁴ Unfortunately, the texts written for these purposes are almost completely lost, and the few of them that we may partially reconstruct often survived only because the appreciative citizen audience inscribed them on stone. This is the case, for instance, for the poetic compositions by Isyllus (fourth century BCE), whose verses can be read on a large inscription from Epidauros (IG IV.1 [ed. min.], 128).⁵⁵ This “civic” patronage, due to its local nature, could not assure the preservation of the works which it contributed to produce, but did allow, even in small peripheral cities, the existence of a cultural life, focused on literature and literary texts.

The evidence considered so far is focused on prose texts, but at least from the early Hellenistic age a similar method of composition became characteristic also of poetry. The new poetics codified by the Alexandrians required an attention to formal details, unlike the extemporaneous poetry claimed to be inspired by the gods. So the tablet, the best mechanism for rewriting and correcting, now becomes a symbol of the poet, as the lyre was for the previous age (Bing 1988, 10–48). In the prologue of Callimachus’ *Aitia*, the poet, during his investiture by Apollo, has a tablet on his knees (F 1.21–2 Pfeiffer; Fantuzzi and Hunter 2004), and in an epigram by Posidippus even the invoked Muses have a tablet in their hands, although written with gold columns.⁵⁶ From this point on, the poet prefers to show himself not as an intermediary between men and gods, but as a seeker of refurbished expressions, chiseling words as a jeweler gold.

Neither the sands of Egypt nor the volcanic muds from Vesuvius have preserved any of the writing tablets used by ancient poets to draft their works. But we can find a slight trace of their

literary efforts in a small number of Greek papyri from Egypt, dating from the third century BCE to the sixth CE (Dorandi 1991), where it is possible to read the draft versions of small poetic compositions by the hands of their authors. These autographs share some common characteristics: they show erasures, corrections, substitutions of single words or whole phrases, repetitions, juxtapositions, alternative readings – features not unlike what we find in modern poets' autographs; they are often written on scraps of papyrus previously employed for other texts, such as documents or private letters, because they were not intended for preservation; the handwriting can be more or less cursive, but never calligraphic. Since the composition process could require not just one, but several drafts, we have different typologies of "autographs," reflecting the level of literary elaboration of the text. The most interesting case is that of Dioscorus, a lawyer who lived in Aphrodito (upper Egypt) in the age of Justinian, who wrote metrical *encomia* for the most influential characters of his region.⁵⁷ These *encomia* survive among his papers, which contain hundreds of petitions, wills, and contracts. The poems were written on the reverse side or on other blank spaces of the documents (P. Cair. Masp. II 67097 and 67185). Sometimes, several texts were confusedly written one after each other, without any sense of continuity, as in P. Lond. Lit. 100 A–H, whose chaotic layout reflects the juxtaposition of textual segments worked on at different times, as in a poetic sketchbook. But other drafts look quite different, showing a further level of elaboration, probably close to the definitive version. The best example is P. Aphrod. Lit. IV 4, an encomium for a Roman, which shows only minimal corrections and is written in a more carefully executed script. We do not know if Dioscorus had the opportunity to collect his poems in a "book," copied by a professional calligrapher, but his rough drafts provide rather unique evidence of the way ancient poets worked on their texts.

Such mechanics of production, if thoroughly pursued, allowed ancient writers to achieve a certain level of control over the reliability (orthographical, textual, and conceptual) of their texts. But they also had a drawback: they increased the risk that texts could be spread beyond the author's circle without his consent. In general, ancient authors had little opportunity to reclaim ownership of their works: after a text was published – whatever this word meant in ancient times (van Groningen 1963) – even basic information, such as the name of its author, could be easily altered because of the material conditions of transmission, or the malignity of less skilled imitators. It was common that texts belonging to less famous authors were ascribed to those better known, especially for works appealing to a large public, such as speeches, rhetorical works, or even medical treatises. Galen reports that he saw a book in Rome with a treatise falsely ascribed to him.⁵⁸ But this problem was much more ancient, evident already in the anthology of lyrics ascribed to Theognis – only partially by the poet – or the *corpus* of juridical speeches of Lysias, which consists mainly of texts not by Lysias (Dover 1968). Drafts were often published without their author's consent, and the author was forced to write apologetic prefaces. Plato already alludes to such a problem in his *Parmenides* (128d–e), but the unauthorized diffusion of works not meant for publication – works in progress or still uncorrected – was a common problem for intellectuals throughout antiquity.⁵⁹ Galen wrote two treatises – *On my books* and *On the order of my own books* – to publicize an official list of his authorized works (Mansfeld 1994, 117–47).

Even as the mechanics of text production here summarized were quite common to writers of different epochs, cultural level and talent, there were certainly significant exceptions. Some intellectuals preferred a more direct relationship with writing. A prolific author such as Plotinus is a good example. The philosopher, as his biographer Porphyry relates, composed very quickly; he personally wrote everything he had in mind, in bad handwriting, never reading or polishing the text. Porphyry interprets this prodigious rapidity as a mark of Plotinus' intellectual supremacy; nevertheless, he has to admit that because of this his master's works could seem even more obscure (Porph., *Plot.* 8).

Indeed, the most significant variations in the mechanics of production are closely connected to the role played by the spoken word. The practice of correcting a text after a group reading gave the voice a part in the process of composition, even during the most bookish centuries of Greek

literature. The relevance of such readings varied considerably, and had varied influences – difficult to be judged – also on the elaboration of the final texts. But, even during the Imperial age, there were intellectuals and artists who preferred to commit to pure orality. Wandering rhapsodes and poets who performed improvised poems, suited to occasions and local contexts, continued to exist, as epigraphic evidence attests (Pallone 1984). Their contribution to the survival of Greek civilization was very important, even if their works are irremediably lost. And pure orality could also be a choice for intellectuals in the highest cultural circles of their time. Again, good examples can be found in philosophic *milieux*. The stoic Epictetus never wrote a single line of his meditations; what we have from him is a selection of lessons collected and transcribed from notes by his disciple Arrian, who also assembled the *Enchiridion*, a collection of sentiments much appreciated by Romantic poets. And other philosophers shared that choice, including Ammonius, teacher of Plotinus, and even Plotinus himself for the first part of his long career.⁶⁰

The variety of available evidence suggests that the production of a literary text in ancient Greece was a dynamic process, influenced by the contexts of literary communication, the purposes of the message, and the variety of the recipients. This process required the use of different materials and technologies, and developed in the context of a constant interaction between voice and writing. This interaction, therefore, appears not to be limited to selected ways of producing texts – as we have long understood – but, at a deeper level, functions as a structural characteristic of Greek literature, in the prismatic, shining variety of its genres, authors, readers, throughout its long development.

NOTES

¹ See e.g. *Apol.* 26e; *Phaed.* 97c–98b; *Phileb.* 39a; *Symp.* 177b–c; *Phaedr.* 228b; 235d; 243c; 266d; 268c; *Protag.* 329a. Del Corso 2003, 12.

² Greek Text in Uthemann 1981.

³ The author of the tale, describing the many gifts brought to the prince of Byblos Zaker Baal by the priest Wen Amon, mentions, after many other more precious items, 500 rolls of papyrus of the best quality, just before lentils and baskets of fish (Pritchard 1969, 28). However, among extant Phoenician papyri the most ancient can be dated to the seventh century BCE, as e.g. the letter from Arisuth, found in Saqqara (Donner and Röllig 1966–69, nr. 50).

⁴ Driver 1976, 79 ff.

⁵ For a balanced discussion of this debated topic, see Osborne 1996, 105–12.

⁶ Heraclitus' book *On Nature*, e.g., was said to have been deposited by the philosopher in the temple of Artemis at Ephesus (Diog. Laer. 9.6 = Heraclitus DK 22 A 1).

⁷ Literary sources are discussed in Skaife Jensen 1980, 128–58 and Ferreri 2002.

⁸ Hdt. 1.123; 3.40; 5.14.

⁹ *In Diog.* (or. 32), 14.

¹⁰ *Pro Phorm.* (or. 36), 40.

¹¹ Aristoph., *Ran.* 52–54 (Dionysus, the main character, remembers when he was *alone* reading Euripides' *Andromeda* on a ship).

¹² Aristoph., *Av.* 959–991 (the oracle-sellers appeals to the authority of the roll he grasps in his hands to persuade Peisetairos, the main character, to make different foundation rituals for the city he wants to build); 1035–57 (another character tries to sell Peisetairos laws and decrees from a *biblion*).

¹³ Skeat 1982; Capasso 1995, 21–53.

¹⁴ Pfeiffer 1968, 115, 178, 218–20; Turner 1968, 113 with n. 29; cf. Gardthausen 1913, 410–15.

¹⁵ Turner 2009, 8.

¹⁶ Properly, the title of ‘oldest Greek papyrus’ must be given now to the fragments from the tomb in Daphni, Odos Olgas, Athens, found in 1981 but published (in a provisional way) only in Pöhlmann and West 2012: their archaeological *terminus ante* is 430–420 BCE.

¹⁷ Kouremenos, Parássoglou and Tsantsanoglou 2006.

¹⁸ P. Berol. inv. 9875; Horden 2002, 85–95.

¹⁹ Measures listed in Cavallo and Machler 2008, nrr. 1 and 2 (with plates and full references).

²⁰ This change of attitude toward writing and books is stressed also by Harris 1989, 116–46; 329, usually very prudent on the extent of literacy in ancient Greece and Rome.

²¹ Cf. Cavallo 1998, 228–42, for the Hellenistic period; Johnson 2004 for the imperial age.

²² Cavallo 2005, 213–33; Del Corso 2010; see in general also Hägg 1991, 90–101. A different perspective in Stephens 1994.

²³ Good examples are the *Odyssey* roll from Hawara, P. Haw. 24–28, now in Oxford, Bodleian Library, or the “Bankes Homer,” P. Lond.Lit. 28, in London, British Library.

²⁴ Luc., *De merc. cond.* 41 (books with ivory *umbilici*).

²⁵ *De indol.* 12–15 (Greek text: Boudon-Millot and Jouanna 2010).

²⁶ Luc., *Ind.*

²⁷ Petr. 48.

²⁸ See e.g. Hor., *Sat.* 2.3.1; *Ars* 386 ff.; Quint. 10.3.31; Mart. 1.2.1–4; Pers. 3.10–11.

²⁹ Athens, *Acropolis Museum* inv. 144, 146, 629. See Payne and Mackworth-Young 1950, 47 (pl. 118.1); Hurwit 1999, 58, with further bibliography.

³⁰ Pöhlmann and West 2012.

³¹ Such continuity can be seen also for the kind of exercises written on the tablets: cf. Turner 1965.

³² Museo Archeologico Ostiense, inv. 130. Zanker 1995, 260–62, fig. 140.

³³ For a list with full bibliography see Jordan 1985 and 2000a, even if many new *defixiones* have been found in excavations during recent years.

³⁴ Ctesias, *FGrHist* 688 F 5 = Diod. Sic. 2.32.4.

³⁵ Lang 1990; Mattingly 1991; Forsdyke 2005.

³⁶ *Ostraka* written by brush or kalamos: Lang 1990, nrs. 110, 308, 311, 468, 652, 653.

³⁷ Hunter and Rutherford 2009; West 2010.

³⁸ See e.g. Arist., *Ath. Pol.* 47.2–3; 49.2; 53.4.

³⁹ Sickinger 1999; Del Corso 2002. A different perspective in Thomas 1989.

⁴⁰ As already supposed by Prentice 1933 for Thucydides. Cf. Dorandi 2007, 13–28.

⁴¹ Strabo, *Geog.* 1.1.23.

⁴² *De tranq. an.* 1, 464F.

⁴³ *Quomodo hist. conscr.*, 48.1.

⁴⁴ Aristid., *or.* 24, 2–3 and 8; 26, 25. On the mechanics of composition of rhetorical speeches see Pernot 1993, 423–75.

⁴⁵ In general, Grafton and Williams 2006.

⁴⁶ See e.g. *Pan.* 200–201 (the author declares that he changed the conclusion of the work after a debate arose while he was reading and correcting it with his students), or *Phil.* 26.

⁴⁷ Diog. Laer. 5.37 = Phanias fr. 4 Wehrli.

⁴⁸ *Pol.* 3.32.

⁴⁹ *Lib.*, *ep.* 33 and 283. Petit 1956, part. 488–90.

⁵⁰ Gal., *In Hipp. Epid. VI comment.* (Greek Text in Wenkebach-Pfaff 1956: *CMG* V 10.2.2), pp. 5; 118; 207. Dorandi 2007, 66–70.

⁵¹ Cavallo 2005, 129–49; Dorandi 2007, 65–81.

⁵² Gold 1987; Grafton and Williams 2006, 46–85.

⁵³ Cf. Schenker, this volume ch. 20, pp. 315–6; Hose ch. 21, pp. 331–4.

⁵⁴ Guarducci 1929; Bouvier 1985; Cameron 1995, 47–53.

⁵⁵ Kolde 2003.

⁵⁶ *Suppl. Hell.* 705.5–6 = 118.5–6 Austin and Bastianini 2002.

⁵⁷ Fournet 1999.

⁵⁸ *Lib. prop., prooem.*, pp. 8–11 Kühn XIX = 135–6 Boudon-Millot 2007.

⁵⁹ See e.g. Diod. Sic. 40.8; Arr., *Epict.*, *praef.* 2–4; Quint., 1, *praef.* 7.

⁶⁰ Porph., *Plot.* 3.

REFERENCES

Papyri are quoted following the *Checklist of Editions*: http://library.duke.edu/rubenstein/scriptorium/papyrus/texts/clist_papyri.html; for inscriptions, the rules of *Supplementum epigraphicum Graecum* are employed.

Atsalos, B. 2001. *La terminologie du livre-manuscrit à l'époque byzantine*. Thessaloniki.

Austin, C. and G. Bastianini. 2002. *Posidippi Pellaei quae supersunt omnia*, Milan.

Austin, M. M. 1970. *Greece and Egypt in the Archaic Age*. Cambridge.

Bachhuber, C. 2006. "Aegean Interest on the Uluburun Ship." *American Journal of Archaeology* 110: 345–63.

Bagnall, R. S., ed. 2009. *Oxford Handbook of Papyrology*. Oxford.

Bagnall, R. S. 2011. *Everyday Writing in the Graeco-Roman East*. Berkeley, CA.

Beck, F. A. G. 1975. *Album of Greek Education*. Sydney.

Bernabé, A. and A. I. Jiménez San Cristóbal. 2008. *Instructions for the Netherworld*. Leiden.

Bing, P. 1988. *The Well-Read Muse*. Göttingen.

Blanchard, A. 1993. "Les papyrus littéraires grecs extraits de cartonnages: études de bibliologie." In M. Maniaci and P. F. Munafò, eds., *Ancient and Medieval Book Materials and Techniques*, Vatican City, 15–40.

Boudon-Millot, V., ed. 2007. *Galien: Introduction Générale: Sur l'ordre des ses propres livres: Sur ses propres livres: Que l'excellent médecin est aussi philosophe*. Paris.

Boudon-Millot, V. and J. Jouanna, eds. 2010. *Galien: Ne pas se chagriner*. Vol. 4. Paris.

Bouvier, H. 1985. "Hommes des lettres dans les inscriptions delphiques." *Zeitschrift für Papyrologie und Epigraphik* 58: 119–35.

Boyd, T. W. 1994. "Where Ion Stood, What Ion Sang." *Harvard Studies in Classical Philology* 96: 109–21.

Bülow-Jacobsen, A. 2009. "Writing Materials in the Ancient World." In R. S. Bagnall, ed., *Oxford Handbook of Papyrology*. Oxford, 3–29.

Cameron, A. 1995. *Callimachus and his Critics*. Princeton.

Cameron, A. 2011. *The Last Pagans of Rome*. Oxford.

Canfora, L. 1995. "Libri e biblioteche." In G. Cambiano, L. Canfora, and D. Lanza, eds., *Lo spazio letterario della Grecia antica*, 2nd edn., Rome, 11–93.

Capasso, M. 1995. *Volumen, Aspetti della tipologia del rotolo librario antico*. Naples.

Cavallo, G. 1998. "Ambizioni universali e isolamento di una cultura." In S. Settis, ed., *I Greci: Storia, arte, cultura e società*, Turin, 215–47.

Cavallo, G. 2005. *Il calamo e il papiro. La scrittura greca dall'età ellenistica ai primi secoli di Bisanzio*. Florence.

Cavallo, G. 2007. *Leggere a Bisanzio*. Milan.

Cavallo, G. 2009a. "Greek and Latin Writing in the Papyri." In R. S. Bagnall, ed., *Oxford Handbook of Papyrology*. Oxford, 101–48.

Cavallo, G. 2009b. "Libro e pubblico alla fine del mondo antico." In G. Cavallo, ed., *Libri, editori e pubblico nel mondo antico*. Rome, 83–132.

Cavallo G., ed. 2009c. *Libri, editori e pubblico nel mondo antico*. Rome.

Černý, J. 1952. *Paper and Books in Ancient Egypt*. London.

Cribiore, R. 1996. *Writing, Teachers, and Students in Graeco-Roman Egypt*. Atlanta, GA.

Del Corso, L. 2002. "I documenti nella Grecia classica tra produzione e conservazione." *Quaderni di storia* 56: 155–89.

- Del Corso, L. 2003. "Materiali per una protostoria del libro e delle pratiche di lettura nel mondo greco." *Segno e testo* 1: 5–78.
- Del Corso, L. 2005. *La scrittura nel mondo ellenistico*. Rome.
- Del Corso, L. 2010. "Il romanzo greco a Ossirinco e i suoi lettori. Osservazioni paleografiche, bibliologiche, storico-culturali." In G. Bastianini and A. Casanova, eds., *I papiri del romanzo antico*, Florence, 247–77.
- Donner, H. and W. Röllig. 1966–69. *Kanaanäische und Aramäische Inschriften*, 2nd edn. Wiesbaden.
- Dorandi, T. 1991. "Den Autoren über die Schulter geschaut. Arbeitsweise und Autographie bei den antiken Schriftstellern." *Zeitschrift für Papyrologie und Epigraphik* 87: 11–33.
- Dorandi, T. 2007. *Nell'officina dei classici. Come lavoravano gli autori antichi*. Rome.
- Dover, K. J. 1968. *Lysias and the Corpus Lysiacum*. Berkeley, CA.
- Driver, G. R. 1976. *Semitic Writing from Pictograph to Alphabet*. London.
- Fantuzzi, M. and R. L. Hunter. 2004. *Tradition and innovation in Hellenistic poetry*. Cambridge.
- Ferreri, L. 2002. "La biblioteca del tiranno. Una proposta di interpretazione della cosiddetta redazione pisistratea dei poemi omerici." *Quaderni di storia* 56: 5–47.
- Forsdyke, S. 2005. *Exile, Ostracism, and Democracy*. Princeton, NJ.
- Fournet, J.-L. 1999. *Hellénisme dans l'Égypte du VI^e siècle. La bibliothèque et l'oeuvre de Dioscore d'Aphrodité*. Cairo.
- Fraser, P. M. 1972. *Ptolemaic Alexandria*. Oxford.
- Gardthausen V. 1913. *Griechische Palaeographie*. Vol. 2, 2nd edn. Leipzig.
- Gigante, M. 1995. *Philodemus in Italy. The Books from Herculaneum*. Translated by D. Obbink. Ann Arbor, MI.
- Gold, B. K. 1987. *Literary Patronage in Greece and Rome*. Chapel Hill, NC.
- Grafton, A. and M. Williams. 2006. *Christianity and the Transformation of the Book*. Cambridge, MA.
- Guarducci, M. 1929. *Poeti vaganti e conferenzieri dell'età ellenistica*. Rome.
- Harris, W. V. 1989. *Ancient Literacy*. Cambridge, MA.
- Horden, J. H. 2002. *The Fragments of Timotheus of Miletus*. Oxford.
- Hunter, R. and I. Rutherford, eds. 2009. *Wandering Poets in Ancient Greek Culture: Travel, Locality and Pan-Hellenism*. Cambridge.
- Hurwit, J. M. 1999. *The Athenian Acropolis. History, Mythology, and Archaeology from the Neolithic Era to the Present*. Cambridge.
- Immerwahr, H. R. 1964. "Book Rolls on Attic Vases." In Ch. Henderson, ed., *Classical, Medieval and Renaissance Studies in Honor of Berthold Louis Ullman*, Vol. 1, Rome, 17–48.
- Immerwahr, H. R. 1973. "More Book Rolls on Attic Vases." *Antike Kunst* 16: 143–47.
- Jeffery, L. H. 1990. *The Local Scripts of Archaic Greece*. Revised edition with a supplement by A. W. Johnston. Oxford.
- Johnson, W. 2004. *Bookrolls and Scribes in Oxyrhynchus*. Toronto.
- Johnson, W. 2010. *Readers and Reading Culture in the High Roman Empire*. Oxford.
- Jordan, D. R. 1985. "A Survey of Greek Defixiones Not Included in the Special Corpora." *Greek, Roman, and Byzantine Studies* 26: 151–97.
- Jordan, D. R. 2000a. "New Greek Curse Tablets (1985–2000)." *Greek, Roman, and Byzantine Studies* 41: 5–46.
- Jordan, D. R. 2000b. "A Personal Letter Found in the Athenian Agora." *Hesperia* 69: 91–103.
- Kolde, A. 2003. *Politique et religion chez Isylos d'Épidaure*. Basel.
- Kouremenos, T., G. M. Parássoglou, and K. Tsantsanoglou. 2006. *The Derveni Papyrus*. Florence.
- Lang, M. L. 1990. *Ostraka*. Princeton, NJ.
- Lewis, N. 1974. *Papyrus in Classical Antiquity*. Oxford.
- Mansfeld, J. 1994. *Prolegomena: Questions to Be Settled Before the Study of an Author, or a Text*. Leiden.
- Marrou, H. 1938. *ΜΟΥΣΙΚΟΣ ΑΝΗΡ: Étude sur les scènes de la vie intellectuelle figurant sur les monuments funéraires romains*. Grenoble.
- Mattingly, H. B. 1991. "The Practice of Ostracism at Athens." *Antichthon* 25: 1–26.
- Nicolai, R. 2004. *Studi su Isocrate. La comunicazione letteraria nel IV sec. a.C. e i nuovi generi della prosa*. Rome.
- Osborne, R. 1996. *Greece in the Making 1200–479 BCE*. London and New York.
- Pallone, M. R. 1984. "L'epica agonale in età ellenistica." *Orpheus* 5: 156–66.

- Parsons, P. 2007. *City of the Sharp-Nosed Fish. Greek Lives in Roman Egypt*, London.
- Payne, H. and Mackworth-Young, G. 1950. *Archaic Marble Sculpture from the Acropolis*. 2nd edn. London.
- Payton, R. 1991. "The Ulu Burun Writing-Board Set," *Anatolian Studies* 41, 99–106.
- Pecere, O. 2010. *Roma antica e il testo*. Rome.
- Pernot, L. 1993. *La rhétorique de l'éloge dans le monde gréco-romain*. Paris.
- Petit, P. 1956. "Recherches sur la publication et la diffusion des discours de Libanios." *Historia* 5: 479–509.
- Pfeiffer, R. 1968. *History of Classical Scholarship. From the Beginnings to the End of the Hellenistic Age*. Oxford.
- Pinto, P. M. 2003. *Per la storia del testo di Isocrate. La testimonianza d'autore*. Bari.
- Pöhlmann, W. and M. L. West. 2012. "The Oldest Greek Papyrus and Writing Tablets." *Zeitschrift für Papyrologie und Epigraphik* 180: 1–16.
- Pritchard, J. B. 1969. *Ancient Near Eastern Texts Relating to the Old Testament*. 3rd edn. Princeton, NJ.
- Roberts, C. H. and T. C. Skeat. 1983. *The Birth of the Codex*. London.
- Sickinger, J. P. 1999. *Public Records and Archives in Classical Athens*. Chapel Hill, NC.
- Skaife Jensen, M. 1980. *The Homeric Question and the Oral-Formulaic Theory*. Copenhagen.
- Small, J. P. 1998. *Wax Tablets of the Mind. Cognitive Studies of Memory and Literacy in Classical Antiquity*. London.
- Stephens, S. A. 1994. "Who Read Ancient Novels." In J. Tatum, ed., *The Search for the Ancient Novel*, Baltimore, 405–18.
- Symington, D. 1991. "Late Bronze Age Writing-Boards and Their Uses: Textual Evidence from Anatolia and Syria." *Anatolian Studies* 41: 111–23.
- Thomas, R. 1989. *Oral Tradition and Written Records in Classical Athens*. Cambridge.
- Turner, E. G. 1952. *Athenian Books in the Fifth and Fourth Centuries B.C. An Inaugural Lecture Delivered at University College, London, 22 May 1951*. London.
- Turner, E. G. 1965. "Athenians Learn to Write: Plato, Protagoras 362d." *Bulletin of the Institute of Classical Studies* 12: 67–69.
- Turner, E. G. 1968. *Greek Papyri. An introduction*. Oxford.
- Turner, E. G. 1977. *The Typology of the Early Codex*. Philadelphia.
- Uthemann, K.-H., ed. 1981. *Anastasius Sinaita: Viae dux* (CCSG 8). Turnhout.
- Van Groningen, B. A. 1963. "Ekdosis." *Mnemosyne* 16: 1–17.
- Veyne, P. 2000. "La 'plèbe moyenne' sous le haut-empire romain." *Annales. Histoire, Sciences Sociales*, 55, 6: 1169–99.
- Waal, W. 2011. "They Wrote on Wood. The Case for a Hieroglyphic Scribal Tradition on Wooden Writing Boards in Hittite Anatolia." *Anatolian Studies* 61: 21–34.
- Warnock, P. and M. Pendleton. 1991. "The Wood of the Ulu Burun Diptych." *Anatolian Studies* 41, 107–10.
- Wenkebach, E. and F. Pfaff, eds. 1956. *Galenus In Hippocratis Epidemiarum librum VI commentaria I–VI*. Berlin.
- West, M. L. 2010. "Rhapsodes at Festivals." *Zeitschrift für Papyrologie und Epigraphik* 173: 1–13.
- Worp, K. A. and A. Rijksbaron. 1997. *The Kellis Isokrates Codex*. Oxford.
- Zanker, P. 1995. *The Mask of Socrates. The Image of the Intellectual in Antiquity*. Berkeley, CA.

FURTHER READING

For a survey on physical and paleographical characteristics of writing materials see Bülow-Jacobsen 2010 and Cavallo 2010; Parsons 2008, 135–58 starts from papyri to offer a fascinating sketch of ancient book culture; perspectives on the social background of reading and writing (but especially in Roman times) are in Johnson 2010 and Bagnall 2011, this latter offering a rather different perspective from the standard views in Harris 1989. The mechanisms of text production are carefully examined in Dorandi 2007 and Pecere 2010, where most relevant materials are collected. Iconographic evidence may contribute crucially to the reconstruction of cultural practices: see the materials collected in Beck 1975 and Zanker 1995.